BIOPHYSICAL HABITAT UNITS OF THE MOSLEY CREEK STUDY AREA:

EXPANDED LEGEND AND INTERPRETATIONS

Ministry of
Environment
Victoria, B.C.

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CHAPTER ONE - INTRODUCTION

1.1 Background

The Mosley Creek study area occurs in the westcentral interior of British Columbia, west of Tatlayoko Lake (Figure 1). The study was undertaken to assess habitat for mule deer and to provide an ecological framework for enhancing and maintaining available forage and cover. In particular, potential for increasing snowbrush and saskatoon, both important mule deer winter browse, was determined. This study can also be used to assess the habitat of other animals species.

This report and accompanying map describes Ecoregions, Biogeoclimatic Units and Habitat Units for mule deer. Biogeoclimatic Units for the Cariboo Forest Region have previously been mapped by the Ministry of Forests (1986); Ecoregions and Biogeoclimatic Units have previously been mapped and important animal habitats have been described for the Ministry of Environment Cariboo Subregion by Fenger *et al.* (1989).

Appreciation goes to John Youds, Daryll Hebert and Bruce Pendergast for providing background information on animal use for this study and to Ordell Steen and Ray Coupé for reviewing this report. Julie Vanderweerd, Darla Cooper, Marla Zarelli and Dauna Walker word processed the report, while Liz Stanlake provided a final edit.

1.2 Methods

The field study took place in June 1987. Forty-four sample plots of soils and vegetation data were collected, following methods outlined in Walmsley *et al.* (1980) and Sondheim *et al.* (1983). Mapping methods follow Demarchi *et al.* (in prep.). Plant names follow Meidinger (1987).

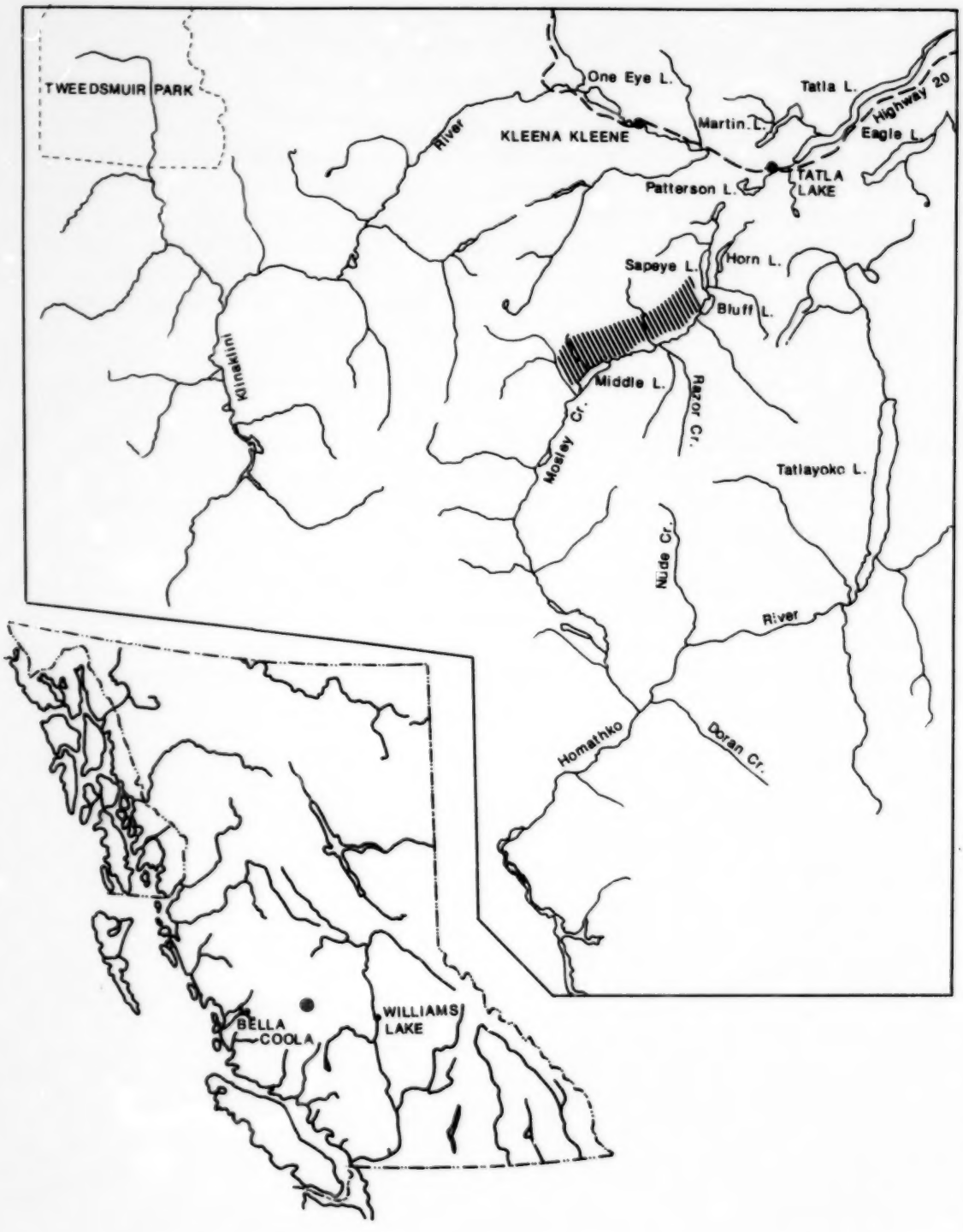

Figure 1. Location of Mosley Creek Study Area.

CHAPTER TWO - ECOREGIONS AND BIOGEOCLIMATIC UNITS

2.1 Ecoregions

Ecoregions are described and mapped for the province by Demarchi (1988). Ecoregions are large areas, influenced by a particular macroclimatic process are interacting processes, over a large physiographic unit, are are characterized by all plant communities and animal populations present. Five levels of Ecoregion classification are recognized, including Ecodomain, Ecodivision, Ecoprovince, Ecoregion and Ecosection. The study area occurs within the Eastern Chilcotin Ranges (ECR) Ecosection, which is a mountainous area within the rainshadow of the Coast Mountains. This ecosection has four Biogeoclimatic Zones, including the Interior Douglas-fir Zone, Montaine Spruce Zone, Engelmann Spruce-Subalpine Fir Zone and Alpine Tundra Zone

2.2 Biogeoclimatic Units

Two Biogeoclimatic Zones, the Interior Douglas-fir Zone and the Montane Spruce (MS) Zone occur in the study area. The Interior Douglas-fir Zone is represented by the Very Dry Montane Interior Douglas-fir (IDFb) Subzone[1]. Subzones have not been recognized for the Montane Spruce Zone within the study area. A Biogeoclimatic Subzone is defined as a geographical area having specific sequences of ecosystems. A subzone is characterized by a zonal ecosystem association, climatic characteristics and a unique characteristic combination of species (Coupé and Yee 1982). Biogeoclimatic Units are mapped for the area by the Ministry of Forests (1986).

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[1] This biogeoclimatic unit is now called the IDFdk4 - Chilcotin Dry Cool Interior Douglas-fir variant.

CHAPTER THREE - BIOPHYSICAL HABITAT UNITS

Biophysical Habitat Units are ecological units that are relatively homogeneous with respect to soils, surficial material, topography, climate, successional trends of vegetation and animal use (Demarchi *et al.*, in prep.).

The following Habitat Units have been mapped and are described in this chapter:

Map Symbol	*Name*
IDFb	**Very Dry Montane Interior Douglas-fir Subzone**
AF*	Abandoned field
AH	Mountain alder - common horsetail swamp
AW	Sitka alder - willow avalanche chute
BS	Paper birch - soopolallie talus
CW	Black cottonwood - Bebb's willow fan
DCc	Douglas-fir - snowbrush ceanothus moderate sloped, southerly aspect, colluvial
DCf	Douglas-fir - snowbrush ceanothus moderate sloped, southerly aspect, fluvial
DCm	Douglas-fir - snowbrush ceanothus moderate sloped, southerly aspects, morainal
DJ	Douglas-fir - juniper shallow soil
DM	Douglas-fir - Douglas maple cool aspect
DR	Douglas-fir - prickly rose fluvial fan
DSd	Douglas-fir - saskatoon steep, southerly aspect, deep soil
DSs	Douglas-fir - saskatoon steep, southerly aspect, shallow soil
GB*	Gravel bar
LP	Lodgepole pine fluvial terrace
MR	Douglas maple - red-osier dogwood gulley
RA	Red-osier dogwood - alder moist
RO*	Rock outcrop
TA*	Talus
WS	Willow - sedge fen
MS	**Montane Spruce Zone**
AW	Sitka alder - willow avalanche chute
DSd	Douglas-fir - saskatoon steep, southerly aspect, deep soil
DSs	Douglas-fir - saskatoon steep, southerly aspect, shallow soil
FF	Subalpine fir - falsebox moderate slope
RO*	Rock outcrop
TA*	Talus

* These Habitat Units are not further described in this report.

Each forested Habitat Unit is broken into five successional stages, including:

1. Shrub - Herb
2. Pole - Sapling (less than 20 years)
3. Young Forests (20 - 60 years)
4. Mature Forests (60 - 140 years)
5. Old-growth Forests (over 140 years)

Non-forested Units do not have successional stages indicated. The following tables describe the Habitat Units that occur in the study area.

3.1 Habitat Units of the Very Dry Montane Interior Douglas-fir Subzone (IDFb)

AH Mountain alder - common horsetail swamp. Biogeoclimatic Unit: IDFb

Description - wet, organic area at base of slope; high water table for much of growing season.

	Map Symbol	AH
	Stage	Edaphic Climax
Vegetation	Dominants	dense tall shrub and herb cover of: mountain alder willow red-osier dogwood common horsetail fringed aster
	Associates	trembling aspen snowberry black twinberry star-flowered false Solomon's-seal palmate coltsfoot green wintergreen
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	willow
	Moderate (5-15% cover)	red-osier dogwood black twinberry snowberry trembling aspen

Comments: willow may be out of reach in alder stands.

AW Sitka alder - willow avalanche chute. Biogeoclimatic Unit: IDFb

Description - steep areas of colluvial material subject to snow avalanching in the winter.

	Stage	Edaphic Climax
Vegetation	Dominants	dense to moderate shrub and herb cover of: Sitka alder willow western meadowrue
	Associates	Douglas maple red raspberry
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	willow
	Moderate (5-15% cover)	Douglas maple

Comments: This unit was not sampled.

BS Paper birch - soopolallie talus habitat unit

Biogeoclimatic Unit: IDFb

Description - steep areas of rubbly talus; droughty sites on surface, although moisture is available lower in the soil for shrub establishment and growth

	Map Symbol	BS1	BS2	BS3	BS4	BS5
	Stage	Shrub-Herb	Pole-Sapling	Young Forests	Mature Forests	Old Growth
Successional Trends	Dominants	moderate shrub cover of: soopolallie pin cherry paper birch Douglas maple red raspberry fireweed	open forests of: paper birch Douglas-fir soopolallie pin cherry Douglas maple kinnikinnick pinegrass	open forests of: paper birch Douglas-fir soopolallie pin cherry Douglas maple kinnikinnick pinegrass	open forests of: paper birch Douglas-fir soopolallie pin cherry Douglas maple kinnikinnick pinegrass	open forests of: Douglas-fir soopolallie pin cherry Douglas maple kinnikinnick pinegrass
	Associates	saskatoon trembling aspen prickly rose kinnikinnick bluebunch wheatgrass shrubby penstemon	trembling aspen saskatoon prickly rose fireweed bluebunch wheatgrass shrubby penstemon	trembling aspen saskatoon prickly rose fireweed bluebunch wheatgrass shrubby penstemon	trembling aspen saskatoon prickly rose fireweed bluebunch wheatgrass shrubby penstemon	paper birch saskatoon prickly rose fireweed bluebunch wheatgrass shrubby penstemon
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	paper birch	paper birch	-	-	-
	Moderate (5-15% cover)	pin cherry shrubby penstemon Douglas maple saskatoon trembling aspen prickly rose kinnikinnick	Douglas-fir Douglas maple saskatoon shrubby penstemon trembling aspen prickly rose kinnikinnick	Douglas-fir Douglas maple saskatoon shrubby penstemon paper birch trembling aspen prickly rose kinnikinnick	Douglas-fir Douglas maple saskatoon paper birch prickly rose shrubby penstemon kinnikinnick	Douglas-fir Douglas maple saskatoon prickly rose shrubby penstemon kinnikinnick

Comments: variable site and vegetation; sparse shrub and especially herb cover

CW Black cottonwood - Bebb's willow fan

Biogeoclimatic Unit: IDFb

Description - active fluvial fan; coarse-textured materials; subsurface moisture available for plant growth

	Map Symbol	CW1	CW2	CW3	CW4	CW5
	Stage	Shrub-Herb	Pole-Sapling	Young Forests	Mature Forests	Old Growth
Succes-sional Trends	Dominants	dense shrub dominated cover of: black cottonwood paper birch Bebb's willow mountain alder	broad-leaved forests of: black cottonwood paper birch Bebb's willow mountain alder	broad-leaved forests of: black cottonwood paper birch Bebb's willow mountain alder	broad-leaved forests of: black cottonwood paper birch Bebb's willow mountain alder	mixed forests of: black cottonwood spruce red-osier dogwood
	Associates	trembling aspen grasses	trembling aspen grasses	trembling aspen spruce	spruce subalpine fir	subalpine fir
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	Bebb's willow black cottonwood paper birch	Bebb's willow	-	-	-
	Moderate (5-15% cover)	trembling aspen	paper birch	paper birch red-osier dogwood	paper birch red-osier dogwood	red-osier dogwood

Comments:

DCc Douglas-fir - snowbrush ceanothus moderate sloped, southerly aspect colluvial habitat unit — Biogeoclimatic Unit IDFb

Description - gentle to moderate slopes of southeast to west aspects; colluvial surficial material; drier than average sites; forested stages generally have moderate to high burnability

	Map Symbol	DCc1	DCc2	DCc3	DCc4	DCc5
	Stage	Shrub-Herb	Pole-Sapling	Young Forests	Mature Forests	Old Growth
Successional Trends	Dominants	shrub dominated cover of: snowbrush prickly rose soopolallie saskatoon pinegrass kinnikinnick	dense tree cover of: Douglas-fir and/or lodgepole pine snowbrush saskatoon prickly rose pinegrass kinnikinnick	dense tree cover of: Douglas-fir and/or lodgepole pine saskatoon prickly rose pinegrass kinnikinnick	dense tree cover of: Douglas-fir and/or lodgepole pine birch-leaved spirea snowberry pinegrass kinnikinnick	open to closed tree cover of: Douglas-fir birch-leaved spirea snowberry pinegrass showy aster
	Associates	tree seedlings birch-leaved spirea willow snowberry wild strawberry yarrow bluebunch wheatgrass	birch-leaved spirea willow soopolallie snowberry showy aster heart-leaved arnica	snowbrush birch-leaved spirea snowberry soopolallie showy aster heart-leaved arnica	soopolallie saskatoon prickly rose showy aster heart-leaved arnica	soopolallie saskatoon prickly rose kinnikinnick heart-leaved arnica
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	snowbrush	Douglas-fir	Douglas-fir	Douglas-fir	Douglas-fir
	Moderate (5-15% cover)	prickly rose saskatoon shrubby penstemon willow snowberry kinnikinnick falsebox (upper elevations) bluebunch wheatgrass	snowbrush prickly rose saskatoon willow snowberry kinnikinnick falsebox	prickly rose saskatoon snowberry kinnikinnick falsebox	prickly rose saskatoon snowberry kinnikinnick falsebox	prickly rose saskatoon snowberry kinnikinnick falsebox

Comments: the Pole-Sapling and Young Forest stages have abundant snowbrush only when open stands of trees exist; dense stands of trees shade out snowbrush; snowbrush may occur in open old-growth stands where underburning has occurred; snowbrush seeds require fire before germination takes place; falsebox occurs at higher elevations of this unit.

DCf Douglas-fir - snowbrush ceanothus moderate sloped, southerly aspect fluvial habitat unit — Biogeoclimatic Unit IDFb

Description - gentle to moderate slopes of southeast to west aspects; fluvial surficial material; drier than average sites; forested stages generally have moderate to high burnability

	Map Symbol	DCf1	DCf2	DCf3	DCf4	DCf5
	Stage	Shrub-Herb	Pole-Sapling	Young Forests	Mature Forests	Old Growth
Succes-sional Trends	Dominants	shrub dominated cover of: snowbrush prickly rose soopolallie saskatoon pinegrass kinnikinnick	dense tree cover of: Douglas-fir and/or lodgepole pine snowbrush saskatoon prickly rose pinegrass kinnikinnick	dense tree cover of: Douglas-fir and/or lodgepole pine saskatoon prickly rose pinegrass kinnikinnick	dense tree cover of: Douglas-fir and/or lodgepole pine birch-leaved spirea snowberry pinegrass kinnikinnick	open to closed tree cover of: Douglas-fir birch-leaved spirea snowberry pinegrass showy aster
	Associates	tree seedlings birch-leaved spirea willow snowberry wild strawberry yarrow bluebunch wheatgrass	birch-leaved spirea willow soopolallie snowberry showy aster heart-leaved arnica	snowbrush birch-leaved spirea snowberry soopolallie showy aster heart-leaved arnica	soopolallie saskatoon prickly rose showy aster heart-leaved arnica	soopolallie saskatoon prickly rose kinnikinnick heart-leaved arnica
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	snowbrush	Douglas-fir	Douglas-fir	Douglas-fir	Douglas-fir
	Moderate (5-15% cover)	prickly rose saskatoon shrubby penstemon willow snowberry kinnikinnick falsebox (upper elevations) bluebunch wheatgrass	snowbrush prickly rose saskatoon willow snowberry kinnikinnick falsebox	prickly rose saskatoon snowberry kinnikinnick falsebox	prickly rose saskatoon snowberry kinnikinnick falsebox	prickly rose saskatoon snowberry kinnikinnick falsebox

Comments: the Pole-Sapling and Young Forest stages have abundant snowbrush only when open stands of trees exist; dense stands of trees shade out snowbrush; snowbrush may occur in open old-growth stands where underburning has occurred; snowbrush seeds require fire before germination takes place; falsebox occurs at higher elevations of this unit.

DCm Douglas-fir - snowbrush ceanothus moderate sloped, southerly aspect morainal habitat unit — Biogeoclimatic Unit IDFb

Description - gentle to moderate slopes of southeast to west aspects; morainal surficial material; drier than average sites; forested stages generally have moderate to high burnability

	Map Symbol	DCm1	DCm2	DCm3	DCm4	DCm5
	Stage	Shrub-Herb	Pole-Sapling	Young Forests	Mature Forests	Old Growth
Successional Trends	Dominants	shrub dominated cover of: snowbrush prickly rose soopolallie saskatoon pinegrass kinnikinnick	dense tree cover of: Douglas-fir and/or lodgepole pine snowbrush saskatoon prickly rose pinegrass kinnikinnick	dense tree cover of: Douglas-fir and/or lodgepole pine saskatoon prickly rose pinegrass kinnikinnick	dense tree cover of: Douglas-fir and/or lodgepole pine birch-leaved spirea snowberry pinegrass kinnikinnick	open to closed tree cover of: Douglas-fir birch-leaved spirea snowberry pinegrass showy aster
	Associates	tree seedlings birch-leaved spirea willow snowberry wild strawberry yarrow bluebunch wheatgrass	birch-leaved spirea willow soopolallie snowberry showy aster heart-leaved arnica	snowbrush birch-leaved spirea snowberry soopolallie showy aster heart-leaved arnica	soopolallie saskatoon prickly rose showy aster heart-leaved arnica	soopolallie saskatoon prickly rose kinnikinnick heart-leaved arnica
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	snowbrush	Douglas-fir	Douglas-fir	Douglas-fir	Douglas-fir
	Moderate (5-15% cover)	prickly rose saskatoon shrubby penstemon willow snowberry kinnikinnick falsebox (upper elevations) bluebunch wheatgrass	snowbrush prickly rose saskatoon willow snowberry kinnikinnick falsebox	prickly rose saskatoon snowberry kinnikinnick falsebox	prickly rose saskatoon snowberry kinnikinnick falsebox	prickly rose saskatoon snowberry kinnikinnick falsebox

Comments: the Pole-Sapling and Young Forest stages have abundant snowbrush only when open stands of trees exist; dense stands of trees shade out snowbrush; snowbrush may occur in open old-growth stands where underburning has occurred; snowbrush seeds require fire before germination takes place; falsebox occurs at higher elevations of this unit.

DJ Douglas-fir - juniper shallow soil habitat unit Biogeoclimatic Unit: IDFb

Description - rock outcrop areas with thin soil; droughty sites

	Map Symbol	DJ
	Stage	Edaphic Climax
Vegetation	Dominants	open forest of: Douglas-fir Rocky Mountain juniper saskatoon shrubby penstemon saxifrage lichens
	Associates	lodgepole pine choke cherry common juniper pasture sage
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	Douglas-fir
	Moderate (5-15% cover)	saskatoon shrubby penstemon choke cherry pasture sage

Comments: sparse vegetation; the same species usually occur after disturbance

DM Douglas-fir - Douglas maple cool aspect habitat unit

Biogeoclimatic Unit IDFb

Description - steep, northerly and easterly facing slopes with low amounts of solar radiation; glaciofluvial, colluvial or morainal surficial material

	Map Symbol	DM1	DM2	DM3	DM4	DM5
	Stage	Shrub-Herb	Pole-Sapling	Young Forests	Mature Forests	Old Growth
Successional Trends	Dominants	shrub-forb cover of: Douglas maple willow soopolallie pinegrass fireweed	dense stands of: Douglas-fir Douglas maple soopolallie pinegrass showy aster heart-leaved arnica	dense stands of: Douglas-fir Douglas maple falsebox pinegrass showy aster heart-leaved arnica	dense stands of: Douglas-fir Douglas maple falsebox pinegrass showy aster heart-leaved arnica	closed stands of: Douglas-fir Douglas maple falsebox pinegrass showy aster heart-leaved arnica moss
	Associates	saskatoon prickly rose falsebox heart-leaved arnica showy aster	saskatoon prickly rose falsebox	saskatoon prickly rose soopolallie	saskatoon prickly rose soopolallie moss	saskatoon prickly rose soopolallie
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	-	Douglas-fir	Douglas-fir	Douglas-fir	Douglas-fir
	Moderate (5-15% cover)	Douglas-fir Douglas maple willow saskatoon falsebox western mountain-ash kinnikinnick	Douglas maple willow saskatoon falsebox western mountain-ash kinnikinnick	Douglas maple willow saskatoon falsebox western mountain-ash kinnikinnick	Douglas maple saskatoon falsebox western mountain-ash willow kinnikinnick	Douglas maple saskatoon falsebox western mountain-ash willow kinnikinnick

Comments: Douglas maple may be abundant on some sites; snow remains on these sites for longer periods than the rest of the study area

DR Douglas-fir - prickly rose fluvial fan habitat unit

Description - low elevation, gently sloping fluvial fans; coarse-textured soils; usually droughty sites

Biogeoclimatic Unit IDFb

	Map Symbol	DR1	DR2	DR3	DR4	DR5
	Stage	Shrub-Herb	Pole-Sapling	Young Forests	Mature Forests	Old Growth
Successional Trends	Dominants	shrub dominated cover of: prickly rose soopolallie wolf-willow pinegrass pussytoes wild strawberry	dense stands of: Douglas-fir and/or lodgepole pine Rocky Mountain juniper prickly rose soopolallie pinegrass	closed stands of: Douglas-fir and/or lodgepole pine Rocky Mountain juniper prickly rose soopolallie pinegrass	closed stands of: Douglas-fir and/or lodgepole pine Rocky Mountain juniper prickly rose soopolallie pinegrass	closed stands of: Douglas-fir Rocky Mountain juniper prickly rose soopolallie pinegrass
	Associates	snowbrush choke cherry snowberry	wolf-willow snowbrush choke cherry snowberry showy aster	snowberry choke cherry birch-leaved spirea showy aster	snowberry birch-leaved spirea showy aster	snowberry birch-leaved spirea showy aster
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	prickly rose	prickly rose Douglas-fir	Douglas-fir prickly rose	Douglas-fir prickly rose	Douglas-fir prickly rose
	Moderate (5-15% cover)	snowbrush choke cherry snowberry Douglas-fir saskatoon	snowbrush choke cherry snowberry saskatoon	choke cherry snowberry saskatoon	snowberry saskatoon	snowberry saskatoon

Comments: prickly rose is very abundant after clearing

DSd Douglas-fir - saskatoon steep, southerly aspect deep soil habitat unit

Biogeoclimatic Unit IDFb

Description - steep slopes of southeast to west aspects; deep soils of fluvial, colluvial or morainal surficial material; droughty sites due to high amounts of solar radiation and coarse-textured soils

	Map Symbol	DSd1	DSd2	DSd3	DSd4	DSd5
	Stage	Shrub-Herb	Pole-Sapling	Young Forests	Mature Forests	Old Growth
Succes-sional Trends	Dominants	shrub-grass dominated cover of: saskatoon snowbrush bluebunch wheatgrass pinegrass kinnikinnick	open forests of: Douglas-fir saskatoon snowbrush bluebunch wheatgrass pinegrass kinnikinnick	open forests of: Douglas-fir saskatoon snowbrush bluebunch wheatgrass pinegrass kinnikinnick	open forests of: Douglas-fir saskatoon birch-leaved spirea snowberry pinegrass bluebunch wheatgrass kinnikinnick	open forests of: Douglas-fir saskatoon birch-leaved spirea snowberry pinegrass bluebunch wheatgrass kinnikinnick
	Associates	soopolallie prickly rose shrubby penstemon arrow-leaved balsamroot junegrass spreading dogbane	soopolallie prickly rose shrubby penstemon arrow-leaved balsamroot junegrass spreading dogbane	soopolallie prickly rose shrubby penstemon arrow-leaved balsamroot junegrass	soopolallie prickly rose shrubby penstemon snowbrush showy aster nodding onion bluebunch wheatgrass	soopolallie prickly rose shrubby penstemon snowbrush showy aster nodding onion
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	saskatoon bluebunch wheatgrass	saskatoon Douglas-fir	saskatoon Douglas-fir	saskatoon Douglas-fir	saskatoon Douglas-fir
	Moderate (5-15% cover)	snowbrush prickly rose shrubby penstemon willow kinnikinnick junegrass	snowbrush prickly rose shrubby penstemon willow kinnikinnick bluebunch wheatgrass junegrass	snowbrush prickly rose snowberry willow kinnikinnick bluebunch wheatgrass	prickly rose shrubby penstemon snowberry snowbrush willow kinnikinnick bluebunch wheatgrass	prickly rose shrubby penstemon snowberry snowbrush willow kinnikinnick bluebunch wheatgrass

Comments: choke cherry and Douglas maple occur on coarser-textured material; low to moderate burnability - usually has low fuel loading; old-growth forests of this habitat unit are important to mule deer for snow interception in moderate to high snow depth years; these sites may have a fair amount of bare soil on the surface

DSs Douglas-fir - saskatoon steep, southerly aspect, shallow soil habitat unit — Biogeoclimatic Unit IDFb

Description - steep slopes of southeast to west aspects; shallow soils of fluvial, colluvial or morainal surficial material; droughty sites due to high amounts of solar radiation and coarse-textured soils

	Map Symbol	DSs1	DSs2	DSs3	DSs4	DSs5
	Stage	Shrub-Herb	Pole-Sapling	Young Forests	Mature Forests	Old Growth
Successional Trends	Dominants	shrub-grass dominated cover of: saskatoon snowbrush bluebunch wheatgrass pinegrass kinnikinnick	open forests of: Douglas-fir saskatoon snowbrush bluebunch wheatgrass pinegrass kinnikinnick	open forests of: Douglas-fir saskatoon snowbrush bluebunch wheatgrass pinegrass kinnikinnick	open forests of: Douglas-fir saskatoon birch-leaved spirea snowberry pinegrass bluebunch wheatgrass kinnikinnick	open forests of: Douglas-fir saskatoon birch-leaved spirea snowberry pinegrass bluebunch wheatgrass kinnikinnick
	Associates	soopolallie prickly rose shrubby penstemon arrow-leaved balsamroot junegrass spreading dogbane	soopolallie prickly rose shrubby penstemon arrow-leaved balsamroot junegrass spreading dogbane	soopolallie prickly rose shrubby penstemon arrow-leaved balsamroot junegrass	soopolallie prickly rose shrubby penstemon snowbrush showy aster nodding onion bluebunch wheatgrass	soopolallie prickly rose shrubby penstemon snowbrush showy aster nodding onion
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	saskatoon bluebunch wheatgrass	saskatoon Douglas-fir	saskatoon Douglas-fir	saskatoon Douglas-fir	saskatoon Douglas-fir
	Moderate (5-15% cover)	snowbrush prickly rose shrubby penstemon willow kinnikinnick junegrass	snowbrush prickly rose shrubby penstemon willow kinnikinnick bluebunch wheatgrass junegrass	snowbrush prickly rose snowberry willow kinnikinnick bluebunch wheatgrass	prickly rose shrubby penstemon snowberry snowbrush willow kinnikinnick bluebunch wheatgrass	prickly rose shrubby penstemon snowberry snowbrush willow kinnikinnick bluebunch wheatgrass

Comments: choke cherry and Douglas maple occur on coarser-textured material; low to moderate burnability - usually has low fuel loading; old-growth forests of this habitat unit are important to mule deer for snow interception in moderate to high snow depth years; these sites may have a fair amount of bare soil on the surface

LP Lodgepole pine fluvial terrace habitat unit

Biogeoclimatic Unit IDFb

Description - level to gently sloping areas of coarse-textured soils on glaciofluvial terraces; cold air ponding; droughty sites

	Map Symbol	LP1	LP2	LP3	LP4	LP5
	Stage	Shrub-Herb	Pole-Sapling	Young Forests	Mature Forests	Old Growth
Succes-sional Trends	Dominants	moderate shrub-forb cover of: soopolallie prickly rose Sitka alder kinnikinnick pinegrass	dense stands of: lodgepole pine soopolallie prickly rose Sitka alder kinnikinnick pinegrass	dense stands of: lodgepole pine soopolallie prickly rose Sitka alder kinnikinnick pinegrass	open to closed stands of: lodgepole pine birch-leaved spirea soopolallie prickly rose twinflower dwarf blueberry moss	open to closed stands of: Douglas-fir lodgepole pine birch-leaved spirea soopolallie prickly rose twinflower dwarf blueberry moss
	Associates	birch-leaved spirea twinflower	birch-leaved spirea falsebox twinflower dwarf blueberry	birch-leaved spirea falsebox twinflower dwarf blueberry	Douglas-fir falsebox kinnikinnick pinegrass	falsebox kinnikinnick pinegrass
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	-	-	-	-	Douglas-fir
	Moderate (5-15% cover)	prickly rose kinnikinnick	prickly rose falsebox kinnikinnick	prickly rose falsebox kinnikinnick	Douglas-fir prickly rose falsebox kinnikinnick	prickly rose falsebox kinnikinnick

Comments: slow succession to Douglas-fir dominated forests; this unit typically has sparse understory shrub and herb layers

MR Douglas maple - red-osier dogwood gully habitat unit Biogeoclimatic Unit: IDFb

Description - water worn gully areas with good moisture availability			
	Map Symbol	MR	
	Stage	Edaphic Climax	
Vegetation	Dominants	dense shrub dominated cover of: Douglas maple red-osier dogwood willow thimbleberry black gooseberry western meadowrue common horsetail	
	Associates	paper birch trembling aspen Douglas-fir spruce subalpine fir alder black twinberry prickly rose asters	
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	Douglas maple red-osier dogwood willow	
	Moderate (5-15% cover)	paper birch trembling aspen Douglas-fir subalpine fir black twinberry prickly rose red elderberry	

Comments: lush, variable unit; Douglas-fir may dominate drier gulleys; the same species usually occur after disturbance

RA Red-osier dogwood - alder moist habitat unit

Biogeoclimatic Unit IDFb

Description - moist, receiving sites of lower slope positions

	Map Symbol	RA1	RA2	RA3	RA4	RA5
	Stage	Shrub-Herb	Pole-Sapling	Young Forests	Mature Forests	Old Growth
Successional Trends	Dominants	shrub dominated cover of: alder red-osier dogwood thimbleberry willow soopolallie blue wildrye horsetail	variable forests of: trembling aspen paper birch and/or spruce alder red-osier dogwood thimbleberry willow soopolallie blue wildrye horsetail	variable forests of: trembling aspen paper birch and/or spruce alder red-osier dogwood willow soopolallie blue wildrye horsetail	dense forests of: spruce trembling aspen alder red-osier dogwood blue wildrye horsetail	dense forests of: spruce alder red-osier dogwood blue wildrye horsetail
	Associates	black twinberry prickly rose red raspberry western meadowrue asters	Douglas-fir black cottonwood black twinberry prickly rose western meadowrue asters	Douglas-fir black cottonwood black twinberry prickly rose western meadowrue asters	Douglas-fir black cottonwood paper birch black twinberry willow prickly rose western meadowrue asters	Douglas-fir black cottonwood black twinberry willow prickly rose western meadowrue asters
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	red-osier dogwood trembling aspen paper birch willow	red-osier dogwood trembling aspen paper birch willow	red-osier dogwood	red-osier dogwood	red-osier dogwood
	Moderate (5-15% cover)	black twinberry highbush-cranberry prickly rose black cottonwood	black twinberry highbush-cranberry prickly rose black cottonwood	willow black twinberry highbush-cranberry prickly rose	willow black twinberry highbush-cranberry prickly rose	willow black twinberry highbush-cranberry prickly rose

Comments: variable unit; good forage availability in most successional stages

WS Willow - sedge fen Biogeoclimatic Unit: IDFb

Description - wet, organic site in level or depressional area; high water table much of growing season		
Vegetation	Map Symbol	WS
	Stage	Edaphic Climax
	Dominants	shrub-forb cover of: willows scrub birch water birch sedges horsetail moss
	Associates	red-osier dogwood black twinberry star-flowered false solomon's-seal
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	willow scrub birch sedges
	Moderate (5-15% cover)	red-osier dogwood black twinberry

Comments: variable site; woolly pussytoes are common on drier sites; yellow ladyslipper may be present

3.2 Habitat Units of the Montane Spruce Zone (MS)

AW Sitka alder - willow avalanche chute Biogeoclimatic Unit: MS

Description - steep areas of colluvial material subject to snow avalanching in the winter.

Vegetation	Map Symbol	AW
	Stage	Edaphic Climax
	Dominants	dense to moderate shrub dominated cover of: Sitka alder willow western meadowrue
	Associates	Douglas maple red raspberry
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	willow
	Moderate (5-15% cover)	Douglas maple

Comments: This unit was not sampled.

FF Subalpine fir - falsebox moderate slope habitat unit

Biogeoclimatic Unit MS

Description - gentle to moderate slopes on areas with average moisture availability for this subzone; fluvial, colluvial or morainal surficial material

	Map Symbol	FF1	FF2	FF3	FF4	FF5
	Stage	Shrub-Herb	Pole-Sapling	Young Forests	Mature Forests	Old Growth
Succes-sional Trends	Dominants	shrub-forb cover of: thimbleberry willow soopolallie showy aster pinegrass fireweed	closed forest of: lodgepole pine Douglas-fir thimbleberry willow soopolallie showy aster pinegrass	closed forest of: lodgepole pine Douglas-fir thimbleberry willow soopolallie showy aster pinegrass	closed forests of: lodgepole pine Douglas-fir subalpine fir falsebox showy aster moss	closed forest of: subalpine fir falsebox prince's pine showy aster moss
	Associates	prickly rose snowberry falsebox kinnikinnick heart-leaved arnica	paper birch prickly rose snowberry falsebox kinnikinnick heart-leaved arnica	subalpine fir paper birch prickly rose snowberry falsebox kinnikinnick prince's pine heart-leaved arnica moss	paper birch soopolallie prickly rose snowberry prince's pine heart-leaved arnica pinegrass	lodgepole pine Douglas-fir soopolallie snowberry heart-leaved arnica pinegrass
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	-	-	-	subalpine fir	subalpine fir
	Moderate (5-15% cover)	willow falsebox saskatoon prickly rose kinnikinnick paper birch	subalpine fir willow falsebox saskatoon prickly rose kinnikinnick paper birch	subalpine fir falsebox saskatoon prickly rose kinnikinnick	falsebox prickly rose	falsebox prickly rose

Comments: hybrid spruce may occur on some sites

DSd Douglas-fir - saskatoon steep, southerly aspect deep soil habitat unit

Biogeoclimatic Unit MS

Description - steep slopes of southeast to west aspects; deep soils of fluvial, colluvial or morainal surficial material; droughty sites due to high amounts of solar radiation and coarse-textured soils

	Map Symbol	DSd1	DSd2	DSd3	DSd4	DSd5
	Stage	Shrub-Herb	Pole-Sapling	Young Forests	Mature Forests	Old Growth
Succes-sional Trends	Dominants	shrub-grass dominated cover of: saskatoon snowbrush bluebunch wheatgrass pinegrass kinnikinnick	open forests of: Douglas-fir saskatoon snowbrush bluebunch wheatgrass pinegrass kinnikinnick	open forests of: Douglas-fir saskatoon snowbrush bluebunch wheatgrass pinegrass kinnikinnick	open forests of: Douglas-fir saskatoon birch-leaved spirea snowberry pinegrass bluebunch wheatgrass	open forests of: Douglas-fir saskatoon birch-leaved spirea snowberry pinegrass bluebunch wheatgrass kinnikinnick
	Associates	soopolallie prickly rose shrubby penstemon arrow-leaved balsamroot junegrass spreading dogbane	soopolallie prickly rose shrubby penstemon arrow-leaved balsamroot junegrass spreading dogbane	soopolallie prickly rose shrubby penstemon arrow-leaved balsamroot junegrass	soopolallie prickly rose shrubby penstemon snowbrush showy aster nodding onion bluebunch wheatgrass	soopolallie prickly rose shrubby penstemon snowbrush showy aster nodding onion
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	saskatoon bluebunch wheatgrass	saskatoon Douglas-fir	saskatoon Douglas-fir	saskatoon Douglas-fir	saskatoon Douglas-fir
	Moderate (5-15% cover)	snowbrush prickly rose shrubby penstemon willow kinnikinnick junegrass	snowbrush prickly rose shrubby penstemon willow kinnikinnick bluebunch wheatgrass junegrass	snowbrush prickly rose snowberry willow kinnikinnick bluebunch wheatgrass	prickly rose shrubby penstemon snowberry snowbrush willow kinnikinnick bluebunch wheatgrass	prickly rose shrubby penstemon snowberry snowbrush willow kinnikinnick bluebunch wheatgrass

Comments: choke cherry and Douglas maple occur on coarser-textured material; low to moderate burnability - usually has low fuel loading; old-growth forests of this habitat unit are important to mule deer for snow interception in moderate to high snow depth years; these sites may have a fair amount of bare soil on the surface

DSs Douglas-fir - saskatoon steep, southerly aspect, shallow soil habitat unit

Biogeoclimatic Unit MS

Description - steep slopes of southeast to west aspects; shallow soils of fluvial, colluvial or morainal surficial material; droughty sites due to high amounts of solar radiation and coarse-textured soils

	Map Symbol	DSs1	DSs2	DSs3	DSs4	DSs5
	Stage	Shrub-Herb	Pole-Sapling	Young Forests	Mature Forests	Old Growth
Succes-sional Trends	Dominants	shrub-grass dominated cover of: saskatoon snowbrush bluebunch wheatgrass pinegrass kinnikinnick	open forests of: Douglas-fir saskatoon snowbrush bluebunch wheatgrass pinegrass kinnikinnick	open forests of: Douglas-fir saskatoon snowbrush bluebunch wheatgrass pinegrass kinnikinnick	open forests of: Douglas-fir saskatoon birch-leaved spirea snowberry pinegrass bluebunch wheatgrass kinnikinnick	open forests of: Douglas-fir saskatoon birch-leaved spirea snowberry pinegrass bluebunch wheatgrass kinnikinnick
	Associates	soopolallie prickly rose shrubby penstemon arrow-leaved balsamroot junegrass spreading dogbane	soopolallie prickly rose shrubby penstemon arrow-leaved balsamroot junegrass spreading dogbane	soopolallie prickly rose shrubby penstemon arrow-leaved balsamroot junegrass	soopolallie prickly rose shrubby penstemon snowbrush showy aster nodding onion bluebunch wheatgrass	soopolallie prickly rose shrubby penstemon snowbrush showy aster nodding onion
Potential Winter Forage for Wild Ungulates	Abundant (above 15% cover)	saskatoon bluebunch wheatgrass	saskatoon Douglas-fir	saskatoon Douglas-fir	saskatoon Douglas-fir	saskatoon Douglas-fir
	Moderate (5-15% cover)	snowbrush prickly rose shrubby penstemon willow kinnikinnick junegrass	snowbrush prickly rose shrubby penstemon willow kinnikinnick bluebunch wheatgrass junegrass	snowbrush prickly rose snowberry willow kinnikinnick bluebunch wheatgrass	prickly rose shrubby penstemon snowberry snowbrush willow kinnikinnick bluebunch wheatgrass	prickly rose shrubby penstemon snowberry snowbrush willow kinnikinnick bluebunch wheatgrass

Comments: choke cherry and Douglas maple occur on coarser-textured material; low to moderate burnability - usually has low fuel loading; old-growth forests of this habitat unit are important to mule deer for snow interception in moderate to high snow depth years; these sites may have a fair amount of bare soil on the surface

CHAPTER FOUR - INTERPRETATION OF HABITAT UNITS FOR BROWSE AND COVER

In Table 4.1, each Habitat Unit and Successional Stage are rated for potential for snowbrush and saskatoon after removal of tree cover, based on site characteristics. Snowbrush also requries fire to germinate. As well, each successional stage of each unit has been rated for present forest cover, in terms of its effect on expected snow depth on the ground, which determines the ease of movement for mule deer in winter.

Table 4.1 Potential for snowbrush and saskatoon and present cover value for wintering mule deer.

Biogeoclimatic Unit	Map Symbol	Potential for Snowbrush	Potential[1] for Saskatoon	Present[2] Cover Value for Mule Deer
IDFb	AF	L	L	N
	AH	N	L	N
	AW	N	L	N
	BS1	N	L	N
	BS2	N	L	L
	BS3	N	L	L
	BS4	N	L	L
	BS5	N	L	M
	CW1	N	L	N
	CW2	N	L	L
	CW3	N	L	L
	CW4	N	L	L
	CW5	N	L	L
	DCc1	H	M	N
	DCc2	H	M	L
	DCc3	H	M	L
	DCc4	H	M	M
	DCc5	H	M	H
	DCf1	H	M	N
	DCf2	H	M	L
	DCf3	H	M	L
	DCf4	H	M	M
	DCf5	H	M	H
	DCm1	H	M	N
	DCm2	H	M	L
	DCm3	H	M	L
	DCm4	H	M	M
	DCm5	H	M	H
	DJ	L	L	L
	DM1	L	L	N
	DM2	L	L	L
	DM3	L	L	L
	DM4	L	L	L
	DM5	L	L	M
	DR1	L	L	N
	DR2	L	L	L
	DR3	L	L	L

Table 4.1 (continued).

Biogeoclimatic Unit	Map Symbol	Potential[1] for Snowbrush	Potential[1] for Saskatoon	Present[2] Cover Value for Mule Deer
IDFb	DR4	L	L	M
	DR5	L	L	H
	DSd1	M	M	N
	DSd2	M	M	L
	DSd3	M	M	M
	DSd4	M	M	H
	DSd5	M	M	V
	DSs1	M	M	N
	DSs2	M	M	L
	DSs3	M	M	M
	DSs4	M	M	H
	DSs5	M	M	V
	GB	N	N	N
	LP1	L	L	N
	LP2	L	L	L
	LP3	L	L	L
	LP4	L	L	L
	LP5	L	L	M
	MR	L	M	N
	RA1	N	L	N
	RA2	N	L	L
	RA3	N	L	L
	RA4	N	L	L
	RA5	N	L	L
	RO	N	N	N
	TA	N	L	N
	WS	N	N	N
MS	AW	N	L	N
	DSd1	M	M	N
	DSd2	M	M	L
	DSd3	M	M	L
	DSd4	M	M	M
	DSd5	M	M	M
	DSs1	M	M	N
	DSs2	M	M	L
	DSs3	M	M	L
	DSs4	M	M	M
	DSs5	M	M	M

Table 4.1 (continued).

Biogeoclimatic Unit	Map Symbol	Potential[1] for Snowbrush	Potential[1] for Saskatoon	Present[2] Cover Value for Mule Deer
MS	FF1	N	L	N
	FF2	N	L	L
	FF3	N	L	L
	FF4	N	L	L
	FF5	N	L	L
	RO	N	L	N
	TA	N	L	N

[1]Potential for snowbrush and saskatoon is rated, based on site capability to support these species. The ratings are H - High, M - Moderate, L - Low, N - Nil.

[2]Present Cover Value for Mule Deer is an assessment of forest canopy and landscape position in its ability to create low snow depth conditions in the winter. Thus old-growth forests on southerly aspects are rated the highest. The ratings are V - Very high, H - High, M - Moderate, L - Low, N - Nil.

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